Health Care Data Report

Utilization and Charges: Hospitals and Freestanding Ambulatory Surgery Centers

2002

March 2004

Bureau of Health Information
Division of Health Care Financing
Wisconsin Department of Health and Family Services

FOREWORD

The data for this report were collected quarterly during 2002 from Wisconsin hospitals and freestanding ambulatory surgery centers (FASCs), under Chapter 153, Wisconsin Statutes. The report presents an annual summary of data on utilization and charges at those facilities.

The portion of the report devoted to inpatient data contains information on services provided to hospital inpatients, the primary reasons for hospitalization, charges for services received, and the most common diagnostic conditions. It also contains selected information for individual hospitals. Comparisons are made to 2001 data to assist the reader in understanding where change occurred. The section devoted to ambulatory surgery reviews utilization and charges for patients undergoing selected surgical procedures at hospitals and FASCs.

General medical-surgical (GMS) and specialty hospitals (excluding federally operated hospitals) provided inpatient data. The report includes data from 130 GMS hospitals, 11 psychiatric hospitals, 1 alcohol and other drug abuse (AODA) hospital, 2 rehabilitation hospitals, and 2 state-operated mental health institutes that reported data during 2002. Ambulatory surgery data were collected from 124 GMS hospitals and 33 FASCs.

John Chapin, Director, Bureau of Health Information, provided overall direction for this report. Judith Nugent, Chief, Person-Level Data and Analysis Section, supervised the report's planning and production.

This publication is not an exhaustive compilation of all inpatient and FASC data collected. The state law governing data collection and preparatation of this report (chapter 153, Wis. Stats.) has changed. Beginning with the 2003 data year, this report will be produced by the Wisconsin Hospital Association under contract with the Wisconsin Department of Administration. Readers desiring additional information on inpatient or ambulatory surgery data or on a specific hospital should contact the Wisconsin Hospital Association regarding the availability and cost of specific data requests.

Questions about this report should be directed to:

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TABLE OF CONTENTS

SELECTED FINDINGS

Inpatient Data

- In 2002, Wisconsin hospitals reported 651,889 inpatient hospitalizations. These resulted in almost 3.0 million days of care and total billed charges of more than $8.4 billion.
- On average, a hospital patient was charged $12,926 per hospitalization during 2002. In general medical-surgical (GMS) hospitals, the average inpatient charge was $13,022. In the specialty hospitals, charges differed between long-term care and short-term specialty care. The average charge was $6,676 in psychiatric hospitals, $10,402 in the alcohol and other drug abuse (AODA) hospital, $24,421 in rehabilitation hospitals, and $29,215 at the state-operated mental health institutes.
- The average hospital stay was 4.6 days. Patients stayed an average of 4.3 days at GMS hospitals, 8.9 days at psychiatric hospitals, 14.5 days at the AODA hospital, 20.4 days at rehabilitation hospitals, and 52.2 days at the state-operated mental health institutes.
- In 2002, there were 65,330 obstetrical hospitalizations (DRGs 370-375[1]) and 68,653 neonatal hospitalizations (DRGs 385-391). There were also 101,008 cardiovascular, 61,493 orthopedic, 36,930 psychiatric, and 16,424 AODA-related hospitalizations in Wisconsin (includes rehabilitation hospitals and state-operated mental health institutes). Combined, these accounted for 54 percent of all hospitalizations in the state.
- The most common reasons for hospitalization were related to birth. These included normal newborn (DRG 391) and normal delivery (DRG 373). Together, these two DRGs represented 15 percent of all hospitalizations.
- Most neonatal stays were classified as "normal newborns" (full-term without complications), accounting for 52,025 hospitalizations (76 percent of all neonatal hospitalizations) with an average charge of $1,402 and an average length of stay of 2.1 days.
- Similarly, 67 percent of all deliveries were classified as "normal" (vaginal delivery without complications). Normal deliveries accounted for 43,964 hospitalizations at an average charge of $4,167. In 12 percent of deliveries, there were complications during vaginal delivery or additional surgery at the time of delivery (e.g., sterilization).
- Approximately 21 percent of all births were delivered by cesarean section.
- Statewide, 8,509 patients had open-heart surgery at 26 GMS hospitals, with an average length of stay of 8.7 days and an average charge of $63,598.
- Four GMS hospitals performed 59 heart transplants, with an average charge of $257,446 and an average length of stay of 43.8 days.
- The most expensive DRGs were Heart Transplant (DRG 103), at an average charge of $257,446, and Extensive Third Degree Burns with Skin Graft (DRG 504), at an average charge of $247,910. Combined, they accounted for only 84 hospitalizations, yet their complexity and length of stay resulted in total charges of more than $19 million.
- The DRGs generating the most total charges were Major Joint and Limb Reattachment (DRG 209, which includes hip

[1] See definition page 6

replacements), at $405 million, and Tracheostomy (DRG 483), at $249 million.

- Females accounted for 58 percent of all hospitalizations. Seventeen percent of hospitalizations among females were childbirth-related.
- During 2002, injury-related hospitalizations and ambulatory surgeries accounted for more than $971 million in charges at hospitals and FASCs (freestanding ambulatory surgery centers).

Ambulatory Surgery Data

- Ambulatory surgery was performed at 124 Wisconsin GMS hospitals and 33 FASCs in 2002. Data for 737,288 cases were collected: 630,167 from hospitals and 107,121 from FASCs.
- Colonoscopy, a diagnostic procedure of the lower gastrointestinal tract, was the most frequently reported ambulatory procedure in 2002, with 61,958 cases.
- Laparoscopic cholecystectomy (gallbladder removal) was the most costly of the ambulatory procedures covered in this report, with a median charge of $7,126. The least expensive was flexible sigmoidoscopy, with a median charge of $491.

Comparison to 2001 Data

- Compared to 2001, the number of hospitalizations in 2002 increased by 0.6 percent, while the number of patient days grew by 0.5 percent.
- Statewide, the average charge per hospitalization rose from $11,597 to $12,926 (11.5 percent) between 2001 and 2002.
- The average charge per hospitalization increased from $11,655 to $13,022 (11.7 percent) at GMS hospitals; from $6,455 to $6,676 (3.4 percent) at psychiatric hospitals; and from $28,405 to $29,215 (2.9 percent) at the state-operated mental health institutes.
- The average charge decreased from $10,553 to $10,402 (1.4 percent) at the AODA hospital and from $25,571 to $24,421 (4.5 percent) at the rehabilitation hospitals.
- Average length of stay decreased 0.4 percent at GMS hospitals, 12.5 percent at the AODA hospital, 8.5 percent at rehabilitation hospitals, and 0.3 percent at the state-operated mental health institutes. Average length of stay increased 4.1 percent at psychiatric hospitals.
- The number of cardiovascular ambulatory surgeries increased 4.0 percent from 2001 to 2002; while facility charges attributable to these surgeries grew by 9.7 percent, from $225.4 million to $247.2 million.

READER'S GUIDE TO THE REPORT

This Reader's Guide provides a basis for understanding and evaluating the data in this report. It explains the kinds of data collected and the terminology needed to understand it. (See page 5 for an explanation of terms used in this report.)

Data Source

This report presents selected data from four quarters of 2002 patient-level data submitted by hospitals and FASCs.

The patient-level data submitted include items such as patient characteristics (age, sex, race), diagnoses, procedures, and charges. Data are derived from billing forms and include information on each patient served in a hospital or freestanding ambulatory surgery center. Patient names cannot be identified, in order to maintain patient confidentiality. Hospitals and FASCs submit patient-level data every three months.

What You Can Learn From this Report

The following is a summary of the information presented in this report:

- The report identifies the average charge for selected medical or surgical treatments. It does not address how much an individual will actually be billed by the facility for that service because each case is different.
- The report identifies a facility's average charges for selected services. It does not provide information on physician charges for inpatient or ambulatory services because those data are not collected.
- The report identifies the variation in charges among hospitals. Hospital charges vary for many reasons; a summary of some of those reasons is provided on pages 4-5.
- The report identifies trends in health care utilization and charges.

Charges vs. Revenues

The amount a facility bills for a patient's care is known as the charge. What it actually receives in payment is known as revenue. This report lists the average charges billed by facilities for selected services. These charges are derived from billing forms, which list the actual charges for each patient. However, health care facilities frequently negotiate discounts with insurance companies or other large purchasers of health care services. The amount actually collected by the facility may differ substantially from the amount billed.

Adjusting the Data for Patient Risk

Many factors affect how much hospitals charge patients for care. One major factor is patient risk, or the severity of illness of patients served by a facility. Sicker patients tend to stay in the hospital longer, require more intensive care, and use more resources than patients who are less ill. Because these factors affect how much patients are charged, comparing charges among patients with the same illness but different degrees of severity is problematic. But differences in severity of patient illness can be estimated, and adjustments can be made that allow better comparisons of charges between patients with varying severity.

In recent years, a number of methods have been developed to measure and adjust for variations in hospital charges caused by illness severity differences in patients. BHI uses computer software products that risk-adjust the inpatient data submitted by hospitals.

The risk-adjustment software used for this report looks at the diagnosis and procedure codes, sex, age, admission source, and discharge status for each patient. All these factors may affect the amount of resources patients use. The software then compares each patient to a nationwide database of similar patients and adjusts the patients' charges to account for the effect of these severity factors. In making this

adjustment, the software attempts to calculate what a patient's charges would have been if the patient's severity of illness was the same as the "average" patient's.

If the actual average charge for a group of patients is *higher* than their risk-adjusted average charge, it means that the patients in this group had a *greater* than average severity of illness.

Once a facility's charges have been risk-adjusted, they may be compared to other risk-adjusted charges, such as those of another hospital or group of hospitals.

In this report, risk-adjusted DRG (Diagnosis Related Group) charge data are presented for each GMS hospital and the following three comparison groups: analysis area, inpatient volume group, and all GMS hospitals as a single group. Analysis areas group GMS hospitals geographically; inpatient volume groups allow comparisons between GMS hospitals of similar size; the "all GMS hospitals" data permit a hospital to be compared to statewide figures.

The report does not risk-adjust charges for psychiatric and alcohol and other drug abuse (AODA) DRGs because differences in charges for these DRGs usually reflect program differences rather than variations in illness severity. For example, one hospital may treat psychiatric patients in longer-term inpatient programs, while another facility may stabilize similar patients and then transfer them to residential facilities following a short inpatient stay.

***Note**: See the technical note on page 485 for a more detailed description of the methodology used to risk-adjust data in this report.*

Why Facility Charges May Differ

New technology - The equipment facilities use to provide services differs in age, sophistication, and utilization. Facilities with the latest technology may have higher charges than those with older, less sophisticated equipment.

Staffing costs - Salary scales may differ regionally and are typically higher in urban than rural areas. Furthermore, competition for nurses and other skilled personnel may result in higher staffing costs and, therefore, higher charges.

Intensity of care - Facilities differ in the severity of illness of patients (i.e., some facilities care for more severely ill patients than others). Patients within the same DRG may need very different levels of service and staff.

Efficiency of operation - Facilities vary in the utilization and efficiency of services they provide. Infrequently used services may cost more per patient than services that are used more frequently.

Differences in coding - Facilities vary in their coding systems and personnel, and in the number of billing codes they put on a billing form. The use of additional appropriate codes may result in a patient being assigned to a DRG with greater reimbursement or may otherwise justify higher charges. Facilities with better-trained personnel or more sophisticated coding software are more likely to place these additional codes on their billing forms and, therefore, may have higher charges than facilities with less expertise.

Payer mix:

Discounts - Facilities negotiate and offer volume discounts to Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), and other large-volume purchasers of health care services. The number of these organizations has grown considerably in recent years. Full charges are paid for only a very small proportion of patients.

Percentage of government pay - Government payers generally reimburse facilities at rates below their full charges, similar to the discounts offered to commercial payers. Therefore, facilities with a large percentage of patients

whose charges are paid either by government programs or discounted commercial payers may report large gaps between what they bill and what they actually receive. This may result in higher charges, including those for non-discounted patients.

Facility price structures - Some facilities spread the cost of services and equipment over all patients. Others bill the full cost of a service to those patients actually using the service. Furthermore, facilities may provide some services at a loss while allowing other facility operations to subsidize the losses. Any of these practices can result in significantly different charges for a given DRG.

Range of services provided - Facilities differ in the range of services they provide to patients. Some may provide the full range of services required for diagnosis and treatment during the stay. Others may stabilize patients and then transfer them to another facility for more specialized or rehabilitative care.

Data-related issues - Facilities differ in the number of cases served, the case-mix and illness severity of patients, and the comparability of patients within DRGs. For example, a single case can greatly affect a facility's average charge if the facility reported only a few cases.

Capital expenses - Facilities differ in the amount of debt and depreciation they must cover in their rate structure. A facility with a heavy debt load, a new building, or a major renovation to amortize may have higher charges than a facility not facing such expenses. Furthermore, facilities may choose to lease or purchase equipment or facilities. The choices made about financing of capital projects may affect charges in different ways.

Basic Terms and Concepts

Statistics

Distribution - Distribution is simply a term referring to a set of events, or data. The charges in the following example could be referred to as a distribution. The distribution can be described in many ways, such as the range, which indicates the low and high values in the distribution (in this case $4,984-$7,002). Average, median, percentile distribution, and standard deviation are other terms used to describe the data in the distribution.

Average (mean) - This is the sum of all values in a distribution divided by the number of values in the distribution. For example, to determine the average charge per discharge for seven pneumonia patients at a particular hospital, the charges for each patient are added together and divided by seven. If the charges for the seven patients were $6,216, $5,425, $4,984, $5,733, $7,002, $6,558, and $5,193, the average charge per discharge would be computed as follows:

$$\begin{array}{r} \$6{,}216 \\ 5{,}425 \\ 4{,}984 \\ 5{,}733 \\ 7{,}002 \\ 6{,}558 \\ \underline{+5{,}193} \\ \$41{,}111 \end{array}$$

$\$41{,}111 \div 7 = \$5{,}873$

Median - The median is the middle value in a distribution when all the values are ranked in order from low to high or high to low. To determine the median charge for the same seven pneumonia patients, the charges are first ranked in order:

$4,984, $5,193, $5,425, $5,733, $6,216, $6,558, and $7,002

The median charge is the middle value: $5,733.

Averages (means) can be significantly affected by a few unusually low or high values (called "outliers"). Since median figures are not affected to such a degree by outliers, they may be more representative of the distribution. Notice if the highest charge for the seven pneumonia patients was $10,502 instead of $7,002, the average charge would climb from $5,873 to $6,373, but the median charge would remain at $5,733. In this case the median charge is a better representation of the facility's charges for pneumonia patients.

Percentile and percentile distribution - A percentile marks a point in a distribution above and below which some percent of the events, or data, fall. For instance, if $2,000 represents the 25th percentile of charges for a certain DRG or ambulatory surgical procedure, it means 25 percent of the patients who were in the DRG or who had the procedure were charged $2,000 or less. Conversely, 75 percent of the patients were charged $2,000 or more. The 25th, 50th (median), and 75th percentiles are also referred to as quartiles, because they mark the points in the distribution above and below which lie one-quarter, one-half, and three-quarters of the events.

Standard deviation - This is a measure of the average variation above or below the mean. When data are in a normal distribution, approximately 68 percent of the values will fall within one standard deviation of the mean, 95 percent within two standard deviations, and 99.7 percent within three standard deviations.

Inpatient Data

Analysis areas - These are groups of counties originally established as health planning districts for federal and state governments. The analysis areas are: Southern (Area 1), Southeastern (Area 2A), Milwaukee County (Area 2B), Lake Winnebago (Area 3), Northeastern (Area 4), West Central (Area 5A), Southwestern (Area 5B), North Central (Area 6) and Western Lake Superior (Area 7). (Refer to the map in Appendix 4 for the analysis area boundaries.)

Average (mean) charge - This is the sum of all charges for a service or facility divided by the number of discharges. The average charge is an approximation of what an average patient would be charged. The charges listed in these reports do not include fees for physician services or convenience services, such as television.

Average (mean) length of stay - This is the total number of days spent in a hospital by a group of patients divided by the number of discharges. Length of stay affects charges because longer stays generate higher charges. In addition, it is a rough indicator of hospital efficiency or program philosophy. For example, two hospitals may have significantly different average stays for psychiatric inpatient treatment. These differences may indicate that a facility offers extended hospital stays, which tend to have higher charges, or alternatives, such as outpatient treatment, which tend to have lower charges.

Median charge and median length of stay - Charges and lengths of stay may also be presented as medians. The median charge represents the amount that half the patients were charged more than and half were charged less than. The median length of stay is expressed as a number of days. Half the patients stayed in the hospital longer than the median length of stay, and half stayed a shorter period of time.

Discharge – A patient becomes a discharge once he or she officially leaves the health care facility. The number of discharges affects how a hospital is staffed, what types of services a hospital offers, and how well it competes in the broader health care system. To some degree it also affects costs because, when viewed relative to the facility's capacity, the number of discharges is a partial indicator of efficiency. The number of discharges is used to calculate the average charge and average length of stay at a facility.

DRG - The basic unit of analysis for inpatient hospitalizations in this report is the diagnosis-related group, or DRG. It is one method of classifying inpatients. The federal government established DRGs as a way to pay hospitals for care of Medicare patients; all payers now use DRGs.

DRGs group patients with similar characteristics, such as diagnoses, procedures, the presence or absence of complicating conditions, and age. For example, patients undergoing simple cesarean sections are assigned to DRG 371. C-section patients with complications during delivery are assigned to DRG 370.

Under Medicare, reimbursements for all patients in the same DRG are the same amount, with only very unusual cases receiving more reimbursement. In 2002, there were 506 DRGs. Definitions of DRGs are updated by the federal government annually on September 30. Wisconsin's Medical Assistance (Medicaid) program has also developed a DRG-like program for reimbursing hospitals for their Medical Assistance patients.

Except for rehabilitation hospitals, BHI uses DRGs to classify all hospital inpatients. By using DRGs, BHI is able to present utilization and charge data in a manner commonly understood by health insurers, providers, and other health care experts.

To describe patients at rehabilitation hospitals, BHI uses a classification system developed by the federal Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration). This system groups patients into rehabilitation categories (e.g., stroke, spinal cord injury). The table in Appendix 3 lists the diagnosis codes used to create these categories.

E-Codes – Health care providers and death certificate coders use E-codes (the "E" comes from "external" cause) to describe the cause of an injury resulting in treatment or death. E-codes are part of the International Classification of Diseases (ICD-9-CM codes), which are used to describe all diagnoses and surgical procedures. BHI collects the E-codes for all injury-related hospitalizations and outpatient surgeries in Wisconsin.

Expected payer - Data on expected payers are compiled from hospital bills. The bills indicate who the facility expects will pay for the services; however, the expected payer does not always pay the bills. A patient's insurance may not cover the particular procedure. The indicated insurer may not actually cover a patient. Therefore, expected pay sources are to be viewed as preliminary.

Expected pay sources include the following:

Medicare - reimbursement under Part A (facility care) of Title 18. Medicare is a federal health insurance program for the elderly and disabled.

Medical Assistance - reimbursement from Wisconsin's Medicaid (Title 19) program only. Reimbursement from Medicaid programs in other states is categorized as *Other Government*. Medicaid is a federal/state program that helps pay for health care for indigent and other eligible persons.

Other Government - reimbursement from CHAMPUS (refers to Civilian Health and Medical Program of the Uniform Services - health benefits for military personnel and dependents), county general relief, county 51.42/51.437 programs, Medicaid from a state other than Wisconsin, and other government sources.

Commercial Insurance - reimbursement from Blue Cross/Blue Shield and other traditional insurance companies, alternative payment systems (e.g., HMOs, PPOs), self-funded plans, and Workers' Compensation.

Self-Pay - reimbursement from a patient's own resources. Self-Pay may also include insurance that has not been assigned (reimbursement made directly to the patient, rather than to the facility).

Unknown - the facility had not yet determined from whom it expected reimbursement.

HCFA-1450 - see UB-92 form.

Hospital Types - There are five types of hospitals providing services in Wisconsin:

Alcohol and other drug abuse (AODA) hospitals - provide diagnostic and therapeutic services to patients with drug or alcohol dependencies.

General medical-surgical (GMS) hospitals - provide diagnostic and therapeutic services to patients for a variety of medical conditions, both surgical and non-surgical.

Psychiatric hospitals - provide diagnostic and therapeutic services to patients with mental or emotional disorders.

Rehabilitation hospitals - provide a comprehensive array of restoration services for the disabled and all support services necessary to help them attain their maximum functioning.

State-operated mental health institutes - provide comprehensive and intensive diagnostic, therapeutic, and support services to patients with unusually complex or difficult mental, emotional, or developmental disorders.

ICD-9-CM codes - (International Classification of Diseases-9th Edition-Clinical Modification) the ninth version of a coding scheme used by hospitals and third-party payers to classify diagnoses and procedures.

Inpatient volume groups - a system for classifying hospitals based on the total number of discharges, adjusted to account for patient mix. Using data from calendar year 2002, the number of patients within each DRG at a hospital was multiplied by the statewide average charge for that DRG. These adjusted charges were then totaled for each hospital, and the hospitals were ranked from lowest to highest. Based on these data, six inpatient volume groups for GMS hospitals were created: two containing 21 hospitals and four containing 22.

Newborn - a discharge reported in the range of ICD-9-CM codes V30 through V39 under *Principal Diagnosis* on the UB-92 form. The term refers to a baby born in a hospital.

Racial distribution - self-reported data on the racial background of patients. Racial groups appearing in the report include Native American, Asian/Pacific Islander, Black, White, Other, and Not Ascertained. Patients are not required to identify their racial background, and the data are based solely on how patients classify themselves.

Risk adjustment - also known as severity adjustment, the modification of hospital data to account for differences in the severity of illness of patients. By adjusting for variation caused by differences in patient risk or severity of illness, more accurate comparisons of data (e.g., charges) can be made between hospitals.

Specialty hospital - a hospital that provides services to patients with specified medical conditions or for special categories of patients. In Wisconsin, this includes psychiatric, alcohol and other drug abuse (AODA), and rehabilitation hospitals, as well as the state-operated mental health facilities. Specialty hospitals were placed in a group by themselves, inpatient volume group 7.

UB-92 form - a uniform patient billing form (HCFA-1450) developed by a national uniform billing committee under the auspices of the federal Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration).

Ambulatory Surgery Data

Ambulatory surgery - Also called outpatient surgery, ambulatory surgery refers to surgical procedures for which patients require less than a 24-hour stay.

Patients undergoing ambulatory surgery are not necessarily comparable to those undergoing the same procedure on an inpatient basis. An inpatient may have greater severity of illness than an outpatient or may have additional, more complicated procedures performed at the same time. Then, too, physicians may differ over the choice of an inpatient versus an outpatient setting for surgery on the same type of patient.

However, there is very little difference between the patients treated in hospital-based ambulatory surgery units and freestanding ambulatory surgery centers (FASCs). FASCs tend to be located in urban areas and compete with hospitals for patients.

Case - defined as one patient visit, even though more than one procedure may be performed during the same surgical episode. For instance, if a myringotomy is performed on both ears during one visit, only one case will be counted, even though two procedures are performed.

CPT-4 codes - a coding scheme developed by the American Medical Association to classify procedures in an ambulatory setting.

Freestanding ambulatory surgery center (FASC) - This is a facility dedicated solely to the provision of surgery on an outpatient basis. FASCs are owned and operated independently of a hospital. BHI collects data only from FASCs certified to treat Medicare patients, although these facilities typically treat many patients whose services are reimbursed by a variety of third-party payers. The data submitted to BHI by FASCs includes all patients who underwent ambulatory surgery, regardless of payer type.

HCFA-1500 - a federal billing form used by hospitals, physicians, clinics, and freestanding ambulatory surgery centers for reimbursement of outpatient services from the Medicare and Medicaid programs and from commercial insurance companies.

Hospital-based outpatient surgery unit - A section of a hospital that provides ambulatory surgery, these units may be part of a hospital campus or in separate buildings. They are owned and controlled by the parent hospital facility.

Procedure - a surgical operation performed on a person during a patient visit, as listed in the ICD-9-CM and CPT-4 codes. A person may undergo more than one procedure during a single surgical operation. For example, a patient who had arthroscopy with tendon repair on one leg undergoes two separate procedures.

Three-digit ZIP code area - used for geographic comparisons of ambulatory surgery utilization and charge data. Each area contains all facilities whose ZIP code begins with the same three digits (e.g., 530, 537). Refer to the map in Appendix 4 for the three-digit ZIP code area boundaries.

CHAPTER I. OVERVIEW OF HOSPITAL INPATIENT UTILIZATION AND CHARGES

Since BHI began collecting inpatient data in 1989, the average length of stay at GMS hospitals has declined each year while the average charge per discharge has increased. In recent years, the decreases in average length of stay have become very small. Between 1999 and 2002 the average length of stay decreased from 4.35 days to 4.26 days. The strong upward trend in average charges, however, has continued, with charges rising by 11.7 percent in 2002, after rising 12.4 percent the year before.

The number of GMS inpatient hospitalizations increased for the fifth year in a row, from 627,882 in 2001 to 631,152 in 2002, or 0.5 percent. Even with these recent increases, the annual number of inpatient hospitalizations has declined by approximately 3 percent from 1989 levels. The average length of stay at GMS facilities has declined by approximately 24 percent since 1989, while the average charge per stay has increased almost 196 percent during the same period.

Hospitalizations at psychiatric hospitals increased 3.2 percent from 2001 to 2002, while patient days increased 7.4 percent. The average charge per stay increased 3.4 percent.

The average charge per stay at the AODA hospital decreased 1.4 percent. The number of hospitalizations increased 5.9 percent but patient days decreased 7.3 percent, due to a 12.5 percent decline in the average length of stay.

Hospitalizations at rehabilitation facilities increased by 14.0 percent, while patient days increased a more modest 4.3 percent due to an 8.5 percent decline in the average length of stay at these facilities. The average charge per stay decreased 4.5 percent.

The average charge per stay rose 2.9 percent at the state-operated mental health institutes. Hospitalizations at these two facilities decreased 1.2 percent, while patient days fell 1.5 percent from the year before.

Note: In this report, the terms *hospitalization* and *discharge* are used interchangeably.

Table 1. Comparative summary of utilization and charges for hospitalizations in Wisconsin, 2001 and 2002

	2002	2001	% Diff
Number of Hospitalizations	651,889	647,992	0.6
Total Patient Days	2,985,568	2,972,114	0.5
Average Stay (days)	4.6	4.6	-0.1
Hospitalizations per 1,000 Population	119.4	119.5	-0.2
Patient Days per 1,000 Population	546.6	548.3	-0.3
Total Charges	$8,422,042,839	$7,510,788,472	12.1
Average Charge per Hospitalization	$12,926	$11,597	11.5

Note: Except for the state-operated mental health institutes, hospitalizations with lengths of stay greater than 100 days were not included when computing the charge data above. These hospitalizations ***were*** *included to compute the number of hospitalizations, patient days, average length of stay, and population-based rates. All hospitalizations of more than 999 days were excluded entirely from the data. During 2002 there were 30 such hospitalizations. Lengths of stay for inpatients who remained in the hospital less than 24 hours were counted as one-day stays.*
Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 2. Summary data for Wisconsin hospitals, by type, 2002

Type	Number of Hospitals	Number of Hospitalizations	Patient Days	Average Stay (days)	Average Charge per Day	Average Charge per Stay
GMS	130	631,152	2,689,259	4.3	$3,090	$13,022
PSYCH	11	17,402	155,203	8.9	981	6,676
AODA	1	125	1,818	14.5	715	10,402
REHAB	2	890	18,136	20.4	1,435	24,421
STATE	2	2,320	121,152	52.2	559	29,215
TOTAL	146	651,889	2,985,568	4.6	2,890	12,926

*Note: Except for the state-operated mental health institutes, hospitalizations with lengths of stay greater than 100 days were not included when computing the charge data above. These hospitalizations **were** included to compute the number of hospitalizations, patient days, and average length of stay.*

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 3. Percentage change in utilization and charges in Wisconsin hospitals, by type, 2001 to 2002

Type	Number of Hospitalizations	Patient Days	Average Charge per Stay
GMS	0.5%	0.1%	11.7%
PSYCH	3.2	7.4	3.4
AODA	5.9	-7.3	-1.4
REHAB	14.0	4.3	-4.5
STATE	-1.2	-1.5	2.9

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

CHAPTER II. SERVICES PROVIDED TO INPATIENTS

This chapter has two sections. The first presents statewide information on six broad categories of hospitalization: obstetrical, neonatal, cardiovascular, orthopedic, psychiatric, and alcohol and other drug abuse (AODA). Data reported include the number of hospitalizations, the average length of stay, the average charge, and the median charge per hospitalization.

The second section reviews the ten most frequent reasons for hospitalization, the ten most expensive hospitalizations, and the ten types of hospitalization that generated the greatest amounts in total charges. Three tables are presented, again containing the number of hospitalizations, the average length of stay, the average charge, and the median charge per hospitalization.

The analysis is restricted to GMS (general medical-surgical), psychiatric, and AODA facilities. Patients in these facilities accounted for 99.5 percent of all Wisconsin hospitalizations in 2002. Patients in the state-operated mental health institutes and the rehabilitation hospitals are excluded because of their atypical characteristics (unusually long lengths of stay and high charges). Additional data on these special facilities are available as a data request; see foreword.

Patient hospitalizations are defined in terms of diagnosis-related groups (DRGs). DRGs are a method of classifying hospital stays according to the diagnosis of the patient, the procedures performed, and other factors, such as age and the presence of complications or comorbidities (other conditions that affect the amount of care required by a patient). Many third-party payers use DRGs to reimburse a hospital at a fixed amount for all similar patients, regardless of the length of stay or actual cost incurred. The DRG system is also widely used in many kinds of health data analysis. This report uses DRGs as a way to compare similar patients.

Section 1: Hospitalization Categories

Birth-Related Hospitalizations: The Mothers

In 2002, 65,330 women delivered babies (single and multiple births) in Wisconsin hospitals, down from 65,970 in 2001.

Most deliveries (67.3 percent) were normal and uncomplicated (DRG 373). The remaining vaginal deliveries, including those with complicating diagnoses or concurrent procedures, such as sterilization (DRGs 372, 374, and 375), represented 12.1 percent of deliveries.

Statewide, the rate for Cesarean sections, also called C-sections (DRGs 370 and 371), rose to 20.6 percent of deliveries from 19.1 percent the year before.

Differences in C-section rates by hospital are often studied because they reflect individual physician practices, socioeconomic factors, access to and availability of prenatal care, and other factors. Hospitals with few deliveries may have higher C-section rates, simply because small changes in the number of C-sections affect rates more when the number of deliveries is small than when it is large. However, hospitals with many deliveries may also have high C-section rates because they have programs aimed at treating high-risk pregnancies. Therefore, a C-section rate by itself is not an indicator of hospital quality or performance but may highlight an area for further review.

Among facilities with more than 500 obstetric cases, Saint Joseph's Hospital, Marshfield, had the highest C-section rate, at 32 percent of deliveries (up from 31 percent in 2001). United Hospital System - Kenosha Medical Center Campus, Kenosha, had the second highest rate, at 27 percent (up from 25 percent the year before). The lowest C-section rates at large obstetric facilities were 14 percent, at St. Michael Hospital in Milwaukee (up from

12 percent the previous year), and 14 percent, at Aurora Sinai Medical Center, Milwaukee (the same as in 2001).

Table 4. Deliveries in Wisconsin hospitals, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
370	C-Section with Complications	3,305	4.6	$11,201	$8,948
371	C-Section without Complications	10,125	3.7	8,456	7,682
372	Vaginal Delivery with Complicating Diagnoses	6,291	2.7	5,803	4,695
373	Normal Delivery	43,964	2.1	4,167	3,759
374	Vaginal Delivery with Sterilization &/or D&C	1,617	2.4	8,062	7,168
375	Vaginal Delivery with Operating Room Procedure	28	3.1	10,936	6,907
	Total Deliveries	65,330			

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Birth-Related Hospitalizations: The Babies

Obstetric hospitalizations refer to the delivering mothers. The hospital stays of new babies are referred to as neonatal hospitalizations. They include newborns in the birth hospital, newborns transferred to another hospital before reaching 28 days of age, and a small number of low-birthweight infants less than 28 days old who were re-admitted following their initial hospital stay.

Neonatal hospitalizations in GMS facilities dropped to 68,653 in 2002, from 69,195 in 2001.

Table 5. Neonatal hospitalizations in Wisconsin, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
385	Neonates, Died or Transferred	1,675	5.5	$15,900	$1,919
386	Extreme Immaturity or Respiratory Distress	1,135	33.4	74,950	47,621
387	Prematurity with Major Problems	1,163	14.3	25,561	16,961
388	Prematurity without Major Problems	2,319	4.4	5,168	2,105
389	Full Term Neonate with Major Problems	2,965	4.6	8,324	3,899
390	Neonate with Other Significant Problems	7,371	2.5	2,378	1,666
391	Normal Newborn	52,025	2.1	1,402	1,281
	Total Neonatal Hospitalizations	68,653			

Note: Includes newborns in the hospital of birth, newborns transferred to other hospitals, and low birthweight infants readmitted when less than 28 days old after their initial hospital stay.

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Cardiovascular Hospitalizations

In 2002, cardiovascular diagnoses accounted for 101,008 hospitalizations (up from 100,769 in 2001). These patients represented 15.6 percent of all hospitalizations and 23.7 percent of all inpatient charges, compared to 15.6 percent and 23.8 percent, respectively, the year before. Charges for cardiovascular-related hospitalizations reached almost $2 billion.

Twenty-six GMS hospitals (two fewer than in 2001) performed open-heart surgery (DRGs 104-109) on 8,509 patients, an 11.8 percent decrease from 2001. The decrease in open heart surgeries is due, at least in part, to a growth in the number of cardiac catheterization procedures, including those using coronary artery stents, as an alternative to open heart surgery.

The smallest number of open heart surgeries a facility performed was 54. The largest number of open-heart surgeries (1,577) was performed by St. Luke's Medical Center in Milwaukee.

Four urban teaching hospitals performed 59 heart transplants in 2002, although most were performed at two of the facilities. St. Luke's Medical Center, Milwaukee, performed 35 transplants; University of Wisconsin Hospital and Clinics Authority, Madison, performed 19; Froedtert Memorial Lutheran Hospital, Milwaukee, performed three; and Children's Hospital of Wisconsin, Milwaukee, performed two.

Table 6. Cardiovascular hospitalizations in Wisconsin, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
103	Heart Transplant	59	43.8	$257,446	$196,018
104	Cardiac Valve Procedures w/ Catheterization	820	13.8	101,873	84,295
105	Cardiac Valve Procedures w/o Catheterization	1,412	8.8	71,768	55,819
106	Bypass with PTCA†	181	10.0	89,421	78,743
107	Bypass with Catheterization	3,513	8.8	61,207	53,251
108	Other Cardiothoracic Procedures	512	9.0	65,225	47,353
109	Bypass without Catheterization	2,071	6.3	44,306	37,895
110	Major Cardiovascular Procedures w/CC	1,695	8.7	50,604	39,511
116	Other Cardiac Pacemaker Implantation	2,608	3.7	27,863	23,873
127	Heart Failure and Shock	14,714	4.6	10,356	7,949
140	Angina Pectoris	1,841	1.7	5,383	4,632
143	Chest Pain	10,958	1.6	5,958	5,240
516	Percutaneous Cardiovascular Procs. with AMI*	3,696	3.7	28,678	25,823
517	Percutaneous Card. Procs. w/o AMI* w/ Stent	7,759	2.0	24,181	21,758
	All Other Cardiovascular Hospitalizations	49,169			
	Total Cardiovascular Hospitalizations	101,008			

† *PTCA Percutaneous Transluminal Coronary Angioplasty*
* *AMI Acute Myocardial Infarction*
Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Orthopedic Hospitalizations

Diseases and injuries to muscles and the skeletal system resulted in 61,171 hospitalizations in 2002 (not including patients treated at rehabilitation hospitals). An additional 322 orthopedic patients were treated at rehabilitation hospitals. One patient at a psychiatric facility was treated for back-related problems. None were seen at the AODA hospital or the state-operated mental health institutes.

Orthopedic patients accounted for 9.4 percent of hospitalizations and 13.1 percent of total inpatient charges in GMS facilities.

Major joint operations (DRG 209) were the fourth most frequent reason for hospitalization statewide and generated the most total charges of any DRG.

Table 7. Orthopedic hospitalizations in Wisconsin, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
209	Major Joint and Limb Reattachment	17,355	4.4	$23,343	$21,251
210	Hip and Femur Procs w/ Complications	3,249	6.3	21,229	17,815
219	Lower Extr. & Humerus Procs. Age >17 w/o CC	2,406	2.6	12,941	11,425
236	Fractures of Hip and Pelvis	1,353	4.5	7,878	5,821
239	Path. Fractures & Musculo. & Conn. Tiss. Malig.	1,840	5.6	11,143	7,770
243	Medical Back Problems	5,099	3.7	7,270	5,645
498	Spinal Fusion w/o/CC	1,904	3.7	33,869	28,736
499	Back and Neck Procedures w/CC	1,306	4.0	16,178	12,582
500	Back and Neck Procedures w/o/CC	3,928	2.0	10,537	9,552
520	Cervical Spinal Fusion w/o CC	1,918	1.7	18,228	15,614
	All Other Orthopedic Hospitalizations	20,813			
	Total Orthopedic Hospitalizations	61,171			

Note: Data exclude hospitalizations at rehabilitation hospitals.

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Psychiatric Hospitalizations

GMS, psychiatric, and AODA hospitals treated 34,987 psychiatric inpatients in 2002 (up from 34,824 in 2001). They represented 5.4 percent of all hospitalizations and 3.0 percent of all hospital inpatient charges at those facilities.

The number of hospitalizations at psychiatric facilities increased by 3.2 percent from the 2001 number, while patient days rose by 7.4 percent.

The average charge at psychiatric hospitals increased by 3.4 percent in 2002 to $6,676, from $6,455 the year before. The average charge at psychiatric facilities in 2002 was just 83 percent of its peak in 1991 ($8,065), although it has been increasing since 1997.

Table 8. Psychiatric hospitalizations in Wisconsin GMS, psychiatric, and AODA hospitals, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
424	Mental Illness with Surgical Operation	155	9.8	$18,629	$12,277
425	Adjustment Problems	1,453	4.0	6,034	4,317
426	Depression	4,553	5.3	4,301	2,916
427	Neuroses except Depression	2,495	4.7	3,763	2,166
428	Personality Disorders	681	8.8	8,088	4,712
429	Mental Retardation/Organic Problems	1,951	8.8	10,450	7,706
430	Psychoses	22,276	8.2	7,821	5,444
431	Childhood Mental Disorders	1,221	14.0	7,721	5,851
432	Other Mental Problems	202	6.8	8,159	6,138
	Total Psychiatric Hospitalizations	34,987			

Note: Figures exclude hospitalizations at the state-operated mental health institutes.

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

AODA Hospitalizations

Inpatient treatment of alcohol and other chemical dependencies accounted for 16,075 hospitalizations in 2002, down from 16,117 in 2001.

The state's only dedicated AODA hospital, Libertas, in Green Bay, treated 125 inpatients in 2002, a 5.9 percent increase from its 2001 total of 118. The average charge at Libertas fell 1.4 percent, from $10,553 to $10,402 in 2002, while the average length of stay fell 12.5 percent, from 16.6 days to 14.5 days.

Table 9. AODA hospitalizations in Wisconsin GMS, psychiatric, and AODA hospitals, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
433	AODA, Left Against Medical Advice	911	2.3	$3,277	$2,378
521	AODA, with Complications	3,983	4.9	7,794	5,400
522	AODA, Rehabilitation Therapy without CC	1,476	9.2	6,605	5,718
523	AODA, w/o Rehabilitation Therapy w/o CC	9,705	3.0	3,259	2,388
	Total AODA Hospitalizations	16,075			

Note: Figures exclude hospitalizations at the state-operated mental health institutes.

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Section 2: Most Frequent, Most Expensive, and Highest Charge-Generating Reasons for Hospitalization

Most Frequently Occurring DRGs

The ten most frequently occurring DRGs (see Table 10) accounted for 31.5 percent of all hospitalizations and 16.7 percent of all inpatient charges at GMS, psychiatric and AODA facilities in 2002.

Birth-related hospitalizations (obstetric and neonatal—DRGs 370-375 and 385-391) accounted for 20.7 percent of all hospitalizations at these facilities, but only 7.5 percent of charges.

The average hospital stays for patients with the most frequently reported DRGs were relatively short (4.9 days or less for all but one DRG). Average charges were also relatively low for the most common DRGs ($6,800) compared to the average charge for all inpatients at GMS, psychiatric, and AODA facilities ($12,853).

Table 10. Most common hospitalizations at Wisconsin GMS, psychiatric, and AODA facilities, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
391	Normal Newborn	52,025	2.1	$1,402	$1,281
373	Normal Delivery	43,964	2.1	4,167	3,759
430	Psychoses	22,276	8.2	7,821	5,444
209	Major Joint and Limb Reattachment	17,355	4.4	23,343	21,251
127	Heart Failure and Shock	14,714	4.6	10,356	7,949
089	Adult Simple Pneumonia and Pleurisy w/CC	13,749	4.9	10,275	8,113
143	Chest Pain	10,958	1.6	5,958	5,240
371	C-Section without Complications	10,125	3.7	8,456	7,682
523	AODA, w/o Rehabilitation Therapy w/o CC	9,705	3.0	3,259	2,388
182	Adult G. I. Disorders w/CC	9,603	3.7	8,251	6,180

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Most Expensive DRGs

Table 11 lists the ten most expensive DRGs in 2002, based on the average charge. They accounted for only 0.5 percent of all hospitalizations but 5.2 percent of total inpatient charges.

These DRGs required specialized treatment and long hospital stays. Most were surgical in nature. Together, they represented only 2,934 hospitalizations.

Table 11. Most expensive hospitalizations at Wisconsin GMS, psychiatric, and AODA facilities, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Median Charge
103	Heart Transplant	59	43.8	$257,446	$196,018
504	Extensive Third Degree Burn with Skin Graft	25	41.4	247,910	189,720
483	Tracheostomy	1,351	38.7	191,730	165,155
495	Lung Transplant	23	18.5	184,075	130,050
480	Liver Transplant	153	22.2	165,685	125,981
512	Simultaneous Pancreas/Kidney Transplant	63	15.5	129,679	113,352
481	Bone Marrow Transplant	243	23.4	112,459	80,097
104	Cardiac Valve Procedures w/Cardiac Cath.	820	13.8	101,873	84,295
106	Coronary Bypass with PTCA†	181	10.0	89,421	78,743
513	Pancreas Transplants	16	13.1	89,267	81,863

†PTCA Percutaneous Transluminal Coronary Angioplasty

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

DRGs with Highest Total Charges

The ten DRGs that generated the highest total charges appear in Table 12. Together, they accounted for 21.5 percent of all hospitalizations and 24.7 percent of total charges. They included a mixture of high-cost conditions (e.g., tracheostomy), high-volume DRGs (e.g., normal delivery, psychoses), and DRGs that were relatively high both in volume and charges (e.g., major joint and limb reattachments).

Table 12. Hospitalizations with the highest total charge-generating DRGs at Wisconsin GMS, psychiatric, and AODA facilities, 2002

DRG	Description	Number of Hospitalizations	Average Stay (days)	Average Charge	Total Charges
209	Major Joint and Limb Reattachment	17,355	4.4	$23,343	$405,123,730
483	Tracheostomy	1,351	38.7	191,730	248,673,828
107	Coronary Bypass with Cardiac Cath.	3,513	8.8	61,207	215,018,970
517	Percutan. Card. Procs. w/o AMI† w Stent	7,759	2.0	24,181	187,623,239
148	Major Bowel Procedures w/CC	5,272	11.0	35,584	187,490,996
373	Normal Delivery	43,964	2.1	4,167	183,192,326
430	Psychoses	22,276	8.2	7,821	173,763,402
462	Rehabilitation	9,512	11.0	17,243	164,002,211
127	Heart Failure and Shock	14,714	4.6	10,356	152,363,209
089	Adult Simple Pneumonia & Pleurisy w/CC	13,749	4.9	10,275	141,277,462

†AMI: Acute Myocardial Infarction

Source: Inpatient Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

CHAPTER III. E-CODES (INJURY-RELATED HOSPITALIZATIONS AND AMBULATORY SURGERIES)

E-codes (the "E" comes from "external" cause) are part of the International Classification of Diseases (ICD) system that all hospitals and death certificate coders use for the disease or injury resulting in hospitalization or death.

The level of detail that E-codes can express about the mechanism, or cause, of injuries is quite precise. Ranges of E-codes are reserved for broad categories of injuries, such as those arising from motor vehicle accidents, falls, firearms, and so forth. Within these categories, codes are available to describe specific injuries. For instance, codes E810-E819 denote motor vehicle traffic accidents. E813 is an accident involving a collision with another vehicle. A fourth digit (e.g., 813.1) describes who was injured, in this case a passenger. In conjunction with other injury codes, the nature of the injury can be specified (spinal cord, head, etc.).

In addition to injury mechanism (cause), policy makers and those who study injuries are often interested in another dimension: intent. Was the injury accidental, intentionally self-inflicted, or the result of an assault? A range of E-codes is reserved to signify injuries arising from suicidal or assaultive intent, from a wide variety of mechanisms.

In this report E-codes have been grouped into broader categories, like those described above. These groups are similar to those being suggested nationally for reporting injury mortality and morbidity.

Most of the categories include codes for intentionally self-inflicted and assaultive injuries. For instance, falls include codes for injuries sustained by jumping from a high place, as well as injuries caused by being pushed from a high place. In the tables that follow, categories containing significant numbers of self-inflicted or assaultive injuries have been subdivided into four components—accidental, self-inflicted, assaultive, and undetermined.

Although many categories are self-explanatory, some merit further explanation:

- *Motor vehicle traffic* accidents are those involving a motor vehicle that occur on public highways.
- *Motor vehicle nontraffic* accidents are those involving a motor vehicle that occur entirely off public highways.

Motor vehicles are defined as mechanically or electrically powered devices that can transport people or property on a highway. They include both on-road (e.g., automobile, motorcycle, bus) and off-road (e.g., snowmobile, ATV) devices.

- *Other pedal cycle* accidents include bicycle or tricycle accidents that are either non-motor vehicle or motor vehicle nontraffic in nature.
- *Other transport* includes all types of accidents involving trains, watercraft, aircraft, or transport animals, but not involving motor vehicles or pedal cycles. For instance, watercraft accidents include injuries arising from collisions with other boats, overturning or sinking of boats, fires and explosions on boats, etc.
- *Natural/environmental* injuries include those caused by exposure, hunger, thirst, venomous animals and plants, other animals (e.g., dog bites), and cataclysmic storms, lightning, or earth movement (e.g., mud slides).
- *Striking/struck by* includes injuries caused by falling objects, accidentally striking against or being struck by objects or persons (e.g., sports accidents), unarmed fights, and being intentionally struck by blunt or thrown objects.

This chapter includes information on injuries for hospital inpatients and patients treated in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers. The database excludes persons treated in emergency rooms but not admitted to the hospital (because they either died or were treated and released).

The table on the next page presents statewide data; tables follow it for each of nine analysis areas dividing the state (see map, page 491). The tables show the number of cases, the rate per 100,000 population (based on estimated 2002 population figures), and the total charges for each injury category. Totals are also shown for self-inflicted injuries and injuries caused by assault. Inpatient and ambulatory surgery data are combined.

The chapter concludes with two additional statewide tables: one displays data on self-inflicted injuries by sex; the other presents data on assaultive injuries by sex.

Table 13. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Statewide, 2002

Statewide

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	3,370	61.7	$20,210,796
Accidental	2,384	43.6	11,910,082
Self-Inflicted	750	13.7	5,075,398
Assault	205	3.8	2,977,032
Undetermined	31	0.6	248,285
Drown/Submersion	54	1.0	958,868
Falls	29,179	534.2	368,222,240
Fire/Flames	353	6.5	13,309,438
Firearms Total	525	9.6	15,130,056
Accidental	163	3.0	2,781,555
Self-Inflicted	48	0.9	1,879,681
Assault	255	4.7	8,787,357
Undetermined	59	1.1	1,681,463
Hot Objects/Scalds	547	10.0	8,551,063
Machinery	1,128	20.7	12,044,830
Motor Vehicle Traffic	6,326	115.8	142,324,886
Other Pedal Cycle	701	12.8	6,125,334
Other Motor Vehicle Nontraffic	1,137	20.8	16,311,799
Other Transport	361	6.6	4,320,479
Natural/Environmental	1,327	24.3	10,892,249
Overexertion	6,380	116.8	45,496,563
Poisoning Total	5,823	106.6	45,834,277
Accidental	1,851	33.9	18,849,450
Self-Inflicted	3,624	66.4	24,101,619
Assault	12	0.2	51,538
Undetermined	336	6.2	2,831,670
Striking/Struck by Total	4,952	90.7	40,977,524
Accidental	3,972	72.7	30,122,877
Assault	980	17.9	10,854,647
Suffocation	477	8.7	12,983,221
Other	20,503	375.4	207,708,789
Total Self-Inflicted	5,032	92.1	39,599,548
Total Assaults	2,139	39.2	32,847,382
Total Injuries	**83,143**	**1,522.3**	**$971,402,413**

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 14. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 1, 2002

Analysis Area 1—Southern

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	496	49.0	$3,212,221
Accidental	365	36.1	2,156,097
Self-Inflicted	95	9.4	671,417
Assault	31	3.1	367,059
Undetermined	5	0.5	17,648
Drown/Submersion	13	1.3	214,119
Falls	5,045	498.3	60,175,764
Fire/Flames	138	13.6	4,218,145
Firearms Total	57	5.6	1,345,217
Accidental	32	3.2	566,260
Self-Inflicted	14	1.4	406,104
Assault	6	0.6	94,000
Undetermined	5	0.5	278,853
Hot Objects/Scalds	128	12.6	1,930,045
Machinery	161	15.9	1,979,591
Motor Vehicle Traffic	1,166	115.2	31,902,964
Other Pedal Cycle	156	15.4	1,834,660
Other Motor Vehicle Nontraffic	203	20.1	4,136,547
Other Transport	75	7.4	757,729
Natural/Environmental	284	28.1	2,092,804
Overexertion	1,213	119.8	7,730,448
Poisoning Total	1,170	115.6	9,670,914
Accidental	320	31.6	4,318,653
Self-Inflicted	764	75.5	4,684,410
Assault	2	0.2	12,617
Undetermined	84	8.3	655,235
Striking/Struck by Total	872	86.1	6,268,013
Accidental	717	70.8	5,066,886
Assault	155	15.3	1,201,127
Suffocation	131	12.9	5,245,450
Other	3,432	339.0	36,428,622
Total Self-Inflicted	953	94.1	7,303,245
Total Assaults	285	28.1	3,079,937
Total Injuries	**14,740**	**1,455.9**	**$179,143,251**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 15. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 2A, 2002

Analysis Area 2A—Southeastern

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	439	43.2	$2,318,253
Accidental	329	32.4	1,407,370
Self-Inflicted	88	8.7	711,572
Assault	11	1.1	102,423
Undetermined	11	1.1	96,889
Drown/Submersion	3	0.3	17,605
Falls	4,675	460.3	58,280,853
Fire/Flames	19	1.9	142,128
Firearms Total	20	2.0	196,903
Accidental	8	0.8	101,386
Self-Inflicted	4	0.4	21,424
Assault	6	0.6	54,320
Undetermined	2	0.2	19,774
Hot Objects/Scalds	42	4.1	266,004
Machinery	150	14.8	936,074
Motor Vehicle Traffic	682	67.2	9,967,317
Other Pedal Cycle	101	9.9	678,009
Other Motor Vehicle Nontraffic	128	12.6	1,343,461
Other Transport	59	5.8	575,442
Natural/Environmental	162	16.0	996,834
Overexertion	890	87.6	7,332,191
Poisoning Total	786	77.4	5,404,359
Accidental	195	19.2	1,720,157
Self-Inflicted	529	52.1	3,280,908
Undetermined	62	6.1	403,294
Striking/Struck by Total	835	82.2	4,557,464
Accidental	723	71.2	3,710,802
Assault	112	11.0	846,663
Suffocation	59	5.8	1,227,611
Other	2,881	283.7	25,444,182
Total Self-Inflicted	660	65.0	4,538,096
Total Assaults	190	18.7	1,749,919
Total Injuries	**11,931**	**1,174.8**	**$119,684,691**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 16. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 2B, 2002

Analysis Area 2B—Milwaukee County

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	922	98.1	$6,801,937
Accidental	711	75.7	3,782,960
Self-Inflicted	75	8.0	875,412
Assault	127	13.5	2,035,750
Undetermined	9	1.0	107,814
Drown/Submersion	22	2.3	648,558
Falls	6,157	655.1	113,592,609
Fire/Flames	104	11.1	8,158,847
Firearms Total	347	36.9	11,217,489
Accidental	61	6.5	1,272,955
Self-Inflicted	12	1.3	514,497
Assault	233	24.8	8,341,962
Undetermined	41	4.4	1,088,075
Hot Objects/Scalds	235	25.0	5,000,048
Machinery	207	22.0	3,744,810
Motor Vehicle Traffic	1,534	163.2	48,241,345
Other Pedal Cycle	148	15.7	1,670,722
Other Motor Vehicle Nontraffic	97	10.3	2,274,170
Other Transport	42	4.5	1,200,316
Natural/Environmental	272	28.9	3,369,133
Overexertion	1,144	121.7	12,159,877
Poisoning Total	1,342	142.8	15,719,908
Accidental	712	75.8	8,969,509
Self-Inflicted	579	61.6	5,866,626
Assault	3	0.3	19,172
Undetermined	48	5.1	864,600
Striking/Struck by Total	1,328	141.3	13,318,485
Accidental	937	99.7	8,625,842
Assault	391	41.6	4,692,643
Suffocation	119	12.7	3,788,135
Other	6,055	644.3	86,476,341
Total Self-Inflicted	731	77.8	9,448,765
Total Assaults	1,129	120.1	21,577,752
Total Injuries	**20,075**	**2,136.0**	**$337,382,732**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 17. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 3, 2002

Analysis Area 3—Lake Winnebago

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	320	55.4	$1,575,807
Accidental	188	32.5	861,362
Self-Inflicted	125	21.6	667,619
Assault	3	0.5	25,681
Undetermined	4	0.7	21,146
Drown/Submersion	1	0.2	991
Falls	2,651	458.9	25,394,832
Fire/Flames	16	2.8	218,731
Firearms Total	21	3.6	330,707
Accidental	11	1.9	65,280
Self-Inflicted	4	0.7	181,921
Assault	2	0.3	46,806
Undetermined	4	0.7	36,700
Hot Objects/Scalds	21	3.6	326,351
Machinery	182	31.5	1,441,329
Motor Vehicle Traffic	551	95.4	10,406,273
Other Pedal Cycle	62	10.7	328,526
Other Motor Vehicle Nontraffic	105	18.2	1,135,411
Other Transport	33	5.7	470,457
Natural/Environmental	73	12.6	733,484
Overexertion	688	119.1	3,457,329
Poisoning Total	541	93.7	2,800,019
Accidental	110	19.0	558,965
Self-Inflicted	412	71.3	2,139,642
Assault	2	0.3	4,449
Undetermined	17	2.9	96,963
Striking/Struck by Total	386	66.8	6,209,687
Accidental	317	54.9	4,045,648
Assault	69	11.9	2,164,039
Suffocation	43	7.4	607,534
Other	1,655	286.5	12,648,068
Total Self-Inflicted	622	107.7	5,014,343
Total Assaults	77	13.3	1,897,834
Total Injuries	**7,349**	**1,272.2**	**$68,085,538**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 18. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 4, 2002

Analysis Area 4—Northeastern

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	395	65.2	$2,270,854
Accidental	258	42.6	1,250,481
Self-Inflicted	123	20.3	804,883
Assault	14	2.3	215,491
Drown/Submersion	4	0.7	27,451
Falls	3,436	567.3	37,214,439
Fire/Flames	18	3.0	137,092
Firearms Total	21	3.5	544,977
Accidental	14	2.3	136,526
Self-Inflicted	3	0.5	175,005
Assault	2	0.3	99,710
Undetermined	2	0.3	133,735
Hot Objects/Scalds	34	5.6	423,714
Machinery	147	24.3	1,257,186
Motor Vehicle Traffic	782	129.1	14,857,201
Other Pedal Cycle	89	14.7	611,132
Other Motor Vehicle Nontraffic	146	24.1	1,562,840
Other Transport	38	6.3	250,192
Natural/Environmental	149	24.6	1,081,896
Overexertion	870	143.6	5,263,874
Poisoning Total	641	105.8	4,336,628
Accidental	188	31.0	1,423,999
Self-Inflicted	413	68.2	2,652,166
Assault	1	0.2	3,622
Undetermined	39	6.4	256,842
Striking/Struck by Total	533	88.0	3,607,332
Accidental	434	71.7	2,814,147
Assault	99	16.3	793,185
Suffocation	50	8.3	701,825
Other	2,769	457.2	19,406,785
Total Self-Inflicted	820	135.4	5,214,257
Total Assaults	152	25.1	1,383,245
Total Injuries	**10,122**	**1,671.1**	**$93,555,419**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 19. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 5A, 2002

Analysis Area 5A—West Central

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	275	61.9	$1,211,487
Accidental	178	40.1	888,416
Self-Inflicted	93	20.9	277,941
Assault	3	0.7	42,283
Undetermined	1	0.2	2,848
Drown/Submersion	3	0.7	7,909
Falls	2,343	527.4	21,146,088
Fire/Flames	23	5.2	172,237
Firearms Total	13	2.9	241,932
Accidental	8	1.8	146,019
Self-Inflicted	3	0.7	63,696
Assault	1	0.2	6,820
Undetermined	1	0.2	25,397
Hot Objects/Scalds	20	4.5	144,498
Machinery	102	23.0	605,714
Motor Vehicle Traffic	439	98.8	6,245,249
Other Pedal Cycle	36	8.1	273,187
Other Motor Vehicle Nontraffic	126	28.4	1,284,349
Other Transport	43	9.7	299,541
Natural/Environmental	121	27.2	826,409
Overexertion	405	91.2	2,669,543
Poisoning Total	415	93.4	2,029,081
Accidental	96	21.6	463,756
Self-Inflicted	297	66.8	1,420,698
Assault	2	0.5	4,305
Undetermined	20	4.5	140,321
Striking/Struck by Total	311	70.0	1,790,176
Accidental	263	59.2	1,487,277
Assault	48	10.8	302,899
Suffocation	19	4.3	258,298
Other	1,267	285.2	8,378,332
Total Self-Inflicted	415	93.4	1,860,895
Total Assaults	72	16.2	439,413
Total Injuries	**5,961**	**1,341.7**	**$47,584,028**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 20. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 5B, 2002

Analysis Area 5B—Southwestern

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	145	56.5	$1,075,978
Accidental	80	31.2	532,431
Self-Inflicted	62	24.1	521,866
Assault	3	1.2	21,681
Drown/Submersion	2	0.8	9,817
Falls	1,417	551.8	17,504,158
Fire/Flames	6	2.3	67,021
Firearms Total	10	3.9	461,788
Accidental	7	2.7	241,761
Self-Inflicted	3	1.2	220,027
Hot Objects/Scalds	15	5.8	164,298
Machinery	64	24.9	749,375
Motor Vehicle Traffic	366	142.5	7,812,267
Other Pedal Cycle	37	14.4	312,597
Other Motor Vehicle Nontraffic	84	32.7	1,245,277
Other Transport	29	11.3	446,760
Natural/Environmental	58	22.6	479,820
Overexertion	327	127.3	2,499,958
Poisoning Total	348	135.5	2,771,735
Accidental	91	35.4	622,686
Self-Inflicted	243	94.6	2,037,578
Undetermined	14	5.5	111,471
Striking/Struck by Total	166	64.6	1,807,254
Accidental	133	51.8	1,396,991
Assault	33	12.9	410,263
Suffocation	13	5.1	281,565
Other	628	244.6	6,946,942
Total Self-Inflicted	317	123.4	2,881,253
Total Assaults	53	20.6	678,329
Total Injuries	**3,715**	**1,446.7**	**$44,636,613**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 21. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 6, 2002

Analysis Area 6—North Central

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	315	68.2	$1,491,496
Accidental	245	53.1	940,486
Self-Inflicted	58	12.6	393,791
Assault	11	2.4	155,279
Undetermined	1	0.2	1,940
Drown/Submersion	6	1.3	32,418
Falls	2,915	631.4	31,044,443
Fire/Flames	26	5.6	170,258
Firearms Total	33	7.1	789,100
Accidental	20	4.3	251,023
Self-Inflicted	5	1.1	297,008
Assault	4	0.9	142,141
Undetermined	4	0.9	98,929
Hot Objects/Scalds	49	10.6	278,903
Machinery	110	23.8	1,314,349
Motor Vehicle Traffic	761	164.8	12,649,613
Other Pedal Cycle	62	13.4	365,029
Other Motor Vehicle Nontraffic	208	45.1	3,086,944
Other Transport	35	7.6	291,094
Natural/Environmental	177	38.3	1,178,111
Overexertion	770	166.8	4,006,403
Poisoning Total	430	93.1	2,401,854
Accidental	104	22.5	577,386
Self-Inflicted	290	62.8	1,568,595
Assault	1	0.2	3,467
Undetermined	35	7.6	252,406
Striking/Struck by Total	467	101.2	3,158,771
Accidental	412	89.2	2,781,045
Assault	55	11.9	377,727
Suffocation	40	8.7	840,440
Other	1,640	355.2	10,907,529
Total Self-Inflicted	381	82.5	2,678,222
Total Assaults	98	21.2	999,649
Total Injuries	**8,044**	**1,742.3**	**$74,006,755**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 22. Wisconsin injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and freestanding ambulatory surgery centers), Analysis Area 7, 2002

Analysis Area 7—Western Lake Superior

Injury Category	Number Of Cases	Rate per 100,000 Population	Total Charges
Cut/Pierce Total	63	42.7	$252,763
Accidental	30	20.3	90,480
Self-Inflicted	31	21.0	150,898
Assault	2	1.4	11,385
Falls	540	365.7	3,869,054
Fire/Flames	3	2.0	24,977
Firearms Total	3	2.0	1,943
Accidental	2	1.4	346
Assault	1	0.7	1,597
Hot Objects/Scalds	3	2.0	17,203
Machinery	5	3.4	16,402
Motor Vehicle Traffic	45	30.5	242,657
Other Pedal Cycle	10	6.8	51,472
Other Motor Vehicle Nontraffic	40	27.1	242,800
Other Transport	7	4.7	28,948
Natural/Environmental	31	21.0	133,757
Overexertion	73	49.4	376,941
Poisoning Total	150	101.6	699,779
Accidental	35	23.7	194,339
Self-Inflicted	97	65.7	450,996
Assault	1	0.7	3,905
Undetermined	17	11.5	50,539
Striking/Struck by Total	54	36.6	260,341
Accidental	36	24.4	194,238
Assault	18	12.2	66,103
Suffocation	3	2.0	32,363
Other	176	119.2	1,071,988
Total Self-Inflicted	133	90.1	660,473
Total Assaults	26	17.6	101,252
Total Injuries	**1,206**	**816.8**	**$7,323,386**

For map of Analysis Areas see page 491

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 23. Self-inflicted injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and FASCs), 2002

Statewide

Injury Category	Male	Female	Total Cases
Poisoning by solid or liquid substances	1,210	2,369	3,579
Poisoning by gases in domestic use	2	2	4
Poisoning by other gases (e.g., car exhaust)	23	19	42
Hanging, strangling, and suffocation	34	11	45
Submersion (drowning)	1	0	1
Firearms and explosives	42	12	54
Cutting/piercing	298	452	750
Jumping from a high place	7	12	19
Other self-inflicted injuries	221	317	538
Total self-inflicted injuries	1,838	3,194	5,032

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

Table 24. Assaultive injuries (to persons treated as hospital inpatients or in hospital-based ambulatory surgery settings and FASCs), 2002

Statewide

Injury Category	Male	Female	Total Cases
Unarmed fight or brawl	640	150	790
Rape	1	12	13
Poisoning	6	6	12
Hanging and strangling	1	3	4
Firearms and explosives	231	24	255
Cutting/piercing	166	39	205
Child battering and other maltreatment	32	89	121
Striking by blunt or thrown object	139	14	153
Bite of human being	19	11	30
Other assaultive injuries	409	147	556
Total assaultive injuries	1,644	495	2,139

Source: Inpatient and Ambulatory Surgery Data, Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.